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ABSTRACT

The problem of full disclosure of the financial operation and position of a school system is discussed in this paper. Techniques described for analyzing revenue and expenditure patterns include percentage changes and index numbers for horizontal analysis and proportions for vertical analysis. Also discussed are how financial reports are affected by the budgetary cycle and the instability of the dollar as a unit of measure. Financial ratios for measuring liquidity and stability are illustrated. Additional techniques are illustrated to show how to "age" payables and receivables and how to estimate the life of inventory. (Author/LD)

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WHAT SCHOOL FINANCIAL REPORTS

REVEAL AND HIDE

A presentation to the 1979 Annual Meeting
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by

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ABSTRACT

"What School Financial Reports Reveal and Hide"
Donald L. Walters

The problem of "full disclosure" of the financial operation and position of a school system is discussed in this paper. Techniques for analyzing revenue and expenditure patterns include percentage changes and index numbers for horizontal analysis and proportions for vertical analysis. Financial ratios for measuring liquidity and stability are illustrated. Liquidity is assessed by using the Current Ratio and Acid Test; stability is measured by ratios of fund balance:total assets, net revenue:fund balance, and fixed assets:long-term debt. How differences in practice for recognizing a financial event, the budgetary cycle, and the instability of the dollar as a unit of measure affect financial reports are discussed. Additional techniques are illustrated to show how to "age" receivables and payables and how to estimate the use-life of inventory.

One of the objectives of public school fund accounting is: "To provide clear and concise financial reports to the public as a basis for judging past, present, and future operation of the school system in view of legal restrictions placed upon such funds." (Tidwell, p. 5) Two key words early in this statement that might be used as a standard for making judgments about school financial reports are "clear" and "concise."

Many school financial reports are largely in a form required by a state reporting system. Consequently, they have been organized in ways easy for the persons at the state level to extract information that they need. But to many people in the local district and to members of the board, these reports often do not tell the story in which they are interested. Therefore, "clear and concise" need to go beyond the typical financial report submitted to the state.

In 1972, ASBO's Accounting and Finance Research Committee adopted a series of recommended accounting principles for school systems. The first of these principles is:

A school system's accounting structure must make it possible to show that all applicable legal provisions have been complied with and to determine fairly and with full disclosure the financial position and results of financial operations of the constituent funds and self-balancing account groups of the school system.
(ASBO)

In the middle of this statement is "to determine fairly and with full disclosure." Thus, this paper discusses some things the financial reports reveal as a part of this disclosure, but also some things that they hide.

What Financial Reports Reveal

A common way of analyzing financial data is to study revenue and expenditure patterns. Exhibit 1 displays rates of change for a revenue source and an expenditure account over a three year period. A simple measure of the rate of change is the percentage of increase or decrease from one year to the next. From Year 1 to Year 2, Local Sources increased 7.1 percent; from Year 2 to Year 3, there was a decrease of 3.7 percent.

Another useful way to show rate of change is by an index with the beginning year as the base year. In the revenue illustration in Exhibit 1, if Year 1 is the base year of 100, then Year 2 is 107 and Year 3 is 103. The index shows that each subsequent year is greater than the base year, but again we note the decline between the second and third years. For an expenditure such as Instruction, the percentage rate of change and index may be computed similarly. This type of analysis across time is described as horizontal analysis.

Another way to examine expenditure and revenue patterns is by vertical analysis (lower portion of Exhibit 1), which looks at the proportion of current expenditures (or revenues) allotted to specific categories. In this form of display, deviations from one year to the next are highlighted. In the illustration (Exhibit 1), Administration remained fairly

EXHIBIT 1

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EXPENDITURE AND REVENUE PATTERNSRATE OF CHANGE

	YEAR 1	YEAR 2	YEAR 3
LOCAL SOURCES	7,745,000	8,292,000	7,984,000
ANNUAL RATE	—	+7.1%	-3.7%
INDEX	100	107	103
INSTRUCTION	5,193,000	5,345,000	5,350,000
ANNUAL RATE	—	+2.9%	+0.1%
INDEX	100	103	103

PROPORTION OF CURRENT EXPENDITURES

ADMINISTRATION	2.9%	2.6%
INSTRUCTION	50.7%	48.9%
OPERATION + MAINTENANCE	10.5%	14.0%
FIXED CHARGES	6.3%	10.3%
DEBT SERVICE	16.1%	11.1%
	—	—
	—	—
	<u>100.0%</u>	<u>100.0%</u>

constant; Instruction declined by nearly 2 percent; and Operation and Maintenance increased by 3.5 percent. Fixed Charges shows an increased percentage of total Current Expenditures while Debt Service reflects a decrease. For this type of analysis a frame of reference is important. Either the same district may be studied across two or more years, or two districts may be compared during the same year, or a given district may be compared to the state's average.

The next techniques for finding what financial reports reveal are unlikely to be used by many school business administrators unless they have an accounting background. And even those who are accountants may not be using these techniques in making presentations to the board or community. But, if one studies intermediate accounting or special graduate courses on financial statement analysis, you will learn about the use of financial ratios--how one part of the statement may be compared to another part.

Measures of liquidity are popular means for showing the ability of an organization to meet its debts. A rather broad measure is the Current Ratio, which has been used by businesses for a long time. The Current Ratio is computed by dividing Current Assets by Current Liabilities. In Exhibit 2 is an illustration of this ratio for two school districts, A and B, for each of two years, (1) and (2). The ratio for School A was stable across the two years. In School B, the ratio

MEASURES OF LIQUIDITY

$$\text{CURRENT RATIO} = \frac{\text{CURRENT ASSETS}}{\text{CURRENT LIABILITIES}}$$

SCHOOL A

SCHOOL B

$$(1) \quad \frac{1,015,000}{383,000} = 2.65 \quad (1) \quad \frac{2,799,000}{1,023,000} = 2.74$$

$$(2) \quad \frac{1,094,000}{411,000} = 2.66 \quad (2) \quad \frac{3,342,000}{983,000} = 3.40$$

$$\text{"ACID TEST"} = \frac{\text{CASH} + \text{TEMPORARY INVESTMENTS}}{\text{CURRENT LIABILITIES}}$$

SCHOOL A

SCHOOL B

$$(1) \quad \frac{693,000+0}{383,000} = 1.81 \quad (1) \quad \frac{2,028,000+0}{1,023,000} = 1.98$$

$$(2) \quad \frac{49,000+650,000}{411,000} = 1.70$$

$$(2) \quad \frac{6,000+2,765,000}{983,000} = 2.82$$

increased from the first to second year; for both years this district was in a stronger position to meet its debts than was School A.

A limiting factor on the use of the Current Ratio is the nature of the Current Assets, some of which may not be readily useable. A special form of the Current Ratio known as the Acid Test, which considers only the current assets of cash and temporary investments, shows a more immediate ability to pay current debts. On this basis, Schools A and B are in a good position (Exhibit 2) with School B being somewhat stronger.

Of particular interest in the Acid Test for Schools A and B is that in Year 1 both had zero temporary investments. All of their quick assets were in cash. In Year 2 both had shifted a sizeable proportion of their quick assets into temporary investments. In this case, the timing of the maturity dates of the investments should be monitored to make sure the investments will become liquid in order to meet debts as they become due.

Another important financial concern is that of stability. In order to measure stability, I have developed three ratios as adaptations of those ordinarily recommended for businesses. The first of these compares Fund Balance to Total Assets. This ratio may be computed for the General Fund or for any of the several individual funds. In Exhibit 3 the ratios for Schools A and B show what part of Total Assets is free and clear.

MEASURES OF STABILITYFUND BALANCE
TOTAL ASSETS

SCHOOL A

SCHOOL B

(1)	$\frac{422,000}{1,015,000} = .42$	(1)	$\frac{1,262,000}{2,799,000} = .45$
(2)	$\frac{426,000}{1,094,000} = .39$	(2)	$\frac{1,930,000}{3,342,000} = .58$

NET REVENUE (R-E)
FUND BALANCE

(1)	$\frac{(14,000)}{422,000} = -.03$	(1)	$\frac{734,000}{1,262,000} = .58$
(2)	$\frac{4,000}{426,000} = .01$	(2)	$\frac{761,000}{1,930,000} = .39$

FIXED ASSETS
LONG-TERM DEBT

(1)	$\frac{6,265,000}{2,059,000} = 3.04$	(1)	$\frac{19,742,000}{9,204,000} = 2.14$
(2)	$\frac{6,353,000}{1,895,000} = 3.35$	(2)	$\frac{19,817,000}{8,549,000} = 2.32$

(In this ratio Fund Balance is the unappropriated fund balance-- that portion of fund balance which has no commitments against it.; In both districts the Fund Balance is relatively large. These results suggest questions about why it is as large as it is and whether the proportion it represents has come about as the consequence of deliberate decision or by fortuitous circumstance.

A second measure of stability is provided by comparing Fund Balance to the difference between current revenues and expenditures. The numerator in this ratio (Exhibit 3) is Net Revenue (Total Revenue minus Total Expenditures) for the fund. School A had a deficit, i.e., expenditures exceeded revenues, in the first year; thus, Fund Balance was eroded by current operations. In the second year a modest amount of net revenue (\$4,000) produced a small positive ratio.

In contrast to School A, School B experienced sizeable net revenue each year. The ratios of .58 and .39 show Fund Balance to be increasing rapidly as a result of current operations. Good or bad? It depends on what the objective is. The taxpayers would probably say "Bad." They would question such large net revenues accumulating in the district as less preferable than keeping the money in their own pockets. On the other hand, the district may be justifiably accumulating funds for a future program or it may well be that it is planning lower tax collections in the coming future. At least, this ratio calls attention to how current operations are affecting Fund Balance.

The third ratio for stability would not be computed from the General Fund but from two groups of self-balancing accounts-- Fixed Assets and Long-Term Debt. This ratio (Exhibit 3) reveals the district's ownership of the school's physical facilities in contrast to that "owned" by bondholders or outside agencies which supplied the funds. For School A the ratio remained above 3:1 in each year and shows that most (67%) of the facilities are owned by the district itself. The lower ratios for School B show that its plant is owned by its creditors to a greater extent than in School A.

The ratio of Fixed Assets to Long-Term Debt has less importance in school financial analysis than in private enterprise. It is unlikely that a school would ever sell its buildings to pay off debt. In private enterprise this ratio takes on importance as a way to protect the bondholders in the event the organization liquidated. Another problem with this ratio is the nature of the dollars representing Fixed Assets. For example, \$6,265,000 (Exhibit 3) is not a very firm number. The debt can be readily calculated, but we have a long standing debate on how best to recognize the value of the physical plant. Whether historical cost, appraised value, or an estimate of current value is used greatly affects the ratio. Thus, if these ratios were compared between districts or across time, we need to know the basis on which fixed assets are valued.

What Financial Reports Hide

A number of accounting concepts influence the ability of a financial report to tell the full story. One of these is the concept of "realization," i.e., when does a financial event occur so that it is recognized in the books and ultimately in the reports? Varying practices not only among the states but within a state make it extremely difficult to pinpoint exactly when financial events are being recognized. Accrual systems, encumbrances, and contingencies all relate to this problem.

Accrual systems recognize liabilities before payments are made and recognize revenue before cash is received; therefore, a financial event is realized well before cash is affected. Likewise, with encumbrances, what basis is used to establish an encumbrance? Ordinarily, state statutes will specify the basis, but there is still room for judgement as to when a purchase order is encumbered. The delay of just a day or two can change the picture shown by the books. This problem is crucial at the end of the fiscal period. If for some reason we push something into the next year, the report will not reveal the fact that information has been tabled. The report hides information about financial events which is sitting around but not yet entered on the books.

Contingencies present a difficult realization problem. If there are any legal suits pending which may result in

damages against the district, a contingency exists against school district funds. Ordinarily these contingencies are recognized in an auditor's report. Certain other contingencies are less substantial and, thus, more difficult to determine whether or not they should appear in the report. For example, whether or not a particular remodeling program is going to be carried out, whether or not certain purchases will be made--these can all color one way or the other the amounts of money shown in the financial report. Under disclosure, accounting organizations have held that the results of all transactions occurring within the period should be recorded so that the period can be complete as it stands. And that anticipated changes should be disclosed.

Another problem of year-end reports is the appearance that the district is coming to a close. The accounting concept of continuity of the entity presumes that the organization will keep on going the next year. The financial reports, however, make it look like the district is coming to a complete close in one year and opening up brand new the next year. We even use the terms: "closing the books" and "opening the books." The budgetary cycle, therefore, affects the financial report rather than do economic decisions. Data about those economic decisions may be colored by the need to adjust the report to budgetary requirements. There is some work being done to develop a financial statement that would include a look at

both budgetary and non-budgetary items. If this approach proves adaptable to school use, it will help minimize the problem of the school not looking like a going concern.

An important aspect of receivables and payables not revealed by most financial reports is their age. In Exhibit 4 a ratio for comparing Current Receivables to Annual Revenue is presented. Such a ratio may be computed for any receivable account and its corresponding revenue account. Current Receivables represents the amount on the books at a specific time while Annual Revenue represents the total revenue projected for the year. Once the ratio is computed, it may be translated into days of revenue in receivables. For example, School A's \$108,000 in Current Receivables (Exhibit 4) in relation to projected revenue of \$3,720,000 represents about 10.4 days of revenue that is now tied up in receivables. For School B, this computation reveals that its receivables represent 13 days of revenue. Our objective, of course, is to convert the receivables into cash as quickly as possible.

Payables may be analyzed in a similar manner. Exhibit 4 illustrates the process for the Payroll Payable account. The results show that School A has more than 51 days of expenditures in payables, and School B has 42.5 days. What is desirable here, a large or small number? The larger the number, the more expenditures there are in the form of payables rather than

ANALYSIS OF RECEIVABLESCURRENT RECEIVABLES
ANNUAL REVENUE

$$\frac{\text{SCHOOL A}}{108,000 = .029} \\ 3,720,000$$

$$\frac{\text{SCHOOL B}}{338,000 = .036} \\ 9,269,000$$

DAYS OF REVENUE
IN RECEIVABLES
(360 DAYS/YEAR)

10.4 DAYS

13.0 DAYS

ANALYSIS OF PAYABLESPAYROLL PAYABLE
ANNUAL SALARY EXPENDITURES

$$\frac{\text{SCHOOL A}}{333,000 = .142} \\ 2,338,000$$

$$\frac{\text{SCHOOL B}}{594,000 = .118} \\ 5,044,000$$

DAYS OF EXPENDITURES
IN PAYABLES
(360 DAYS/YEAR)

51.1 DAYS

42.5 DAYS

in cash disbursements. By looking at both receivables and payables, we find that a small number of days of revenue in receivables is desirable, but for payables the larger the number of days, the longer our control over that cash. Whenever the number of days of expenditures can be increased without incurring the wrath of the creditors we have more opportunity to use the cash for temporary investments or other needs.

To review, the age of receivables and payables is hidden by the financial report. More precise information than what is revealed through the techniques illustrated in Exhibit 4 is desirable. It may well be that the receivables are not due for another thirty or sixty days. For payables we are often better able to compute their age by examining the dates payments are due in comparison to the present date. None of this information, of course, is provided in the financial data of reports.

As we examine these analysis techniques, I am looking at them primarily as ways in which the school business administrator and official can use this information. First of all it is important for us within the business part of the school who prepare the reports to be aware of what they are telling us and what they are not telling us. As we come to understand them, then perhaps we can share our understanding with other members of the administration and with the board--first we must make sure we know what they say.

An additional item which usually appears on the balance sheet of the General Fund is inventory. The dollar amount shown is usually an estimate and not a firm figure. In order to analyze inventory, e.g., materials and supplies, the ending inventory may be divided by the sum of beginning inventory plus annual purchases. This result gives an idea of the amount of inventory on hand and how long that inventory will last.

In School A (Exhibit 5) the ending inventory equaled 46 percent of the total inventory available during the year. School B had a somewhat lower percentage, approximately 29 percent. These ratios or percentages may be converted to days of inventory, assuming inventory is consumed at a constant rate. School A's \$184,000 of inventory would represent 165.6 days of materials and supplies. For School B, the \$250,000 of inventory would represent 103.7 days.

A word of caution in using inventory analysis must be injected because of the problem of valuing inventories and also because of the problem of the dollar. We have assumed a dollar of purchases in beginning inventory is equal to a dollar of purchases in ending inventory. Over the last couple of years this assumption has not been warranted. The number of days should be adjusted to account for inflation that has occurred just within a year. If the inventory has been accumulated over time, the value of some items may go back several years, quite a different dollar altogether.

INVENTORY ANALYSISMATERIALS AND SUPPLIES

ENDING INVENTORY	
BEGINNING + ANNUAL	
INVENTORY PURCHASES	

SCHOOL A

$$\frac{184,000}{170,000 + 230,000} = .460$$

SCHOOL B

$$\frac{250,000}{240,000 + 628,000} = .288$$

SCHOOL A

DAYS OF INVENTORY

$$(.46 \times 360) = 165.6 \text{ DAYS}$$

SCHOOL B

DAYS OF INVENTORY

$$(.288 \times 360) = 103.7 \text{ DAYS}$$

An alternative way to look at inventory is to compute an average inventory and determine the number of days it represents. But if no better way is available, the technique illustrated in Exhibit 5 is a useful tool in planning the adequacy of the inventory level. If a working capital fund or intra-school system service fund were used to operate a central warehouse, inventory would not likely be present on the balance sheet of the General Fund and would be hidden altogether unless we turned to the reports of the working capital fund.

A final point to illustrate what financial reports hide is very much related to the nature of the dollar. We all recognize the dollar, but a rubber one from a novelty shop would show more realistically just how flexible the dollar is. In financial accounting the monetary unit is the base. Instruction is measured in dollars, administration is measured in dollars, fixed assets are measured in dollars, etc. But dollars change in their value; the dollar is a very instable unit of measure. Think how difficult it would be if we had yardsticks that on one day measured 36 inches, but on the next day they stretched to measure 37 or contracted to measure 35 inches. We would be hard pressed to build a building with a flexible yardstick, but the dollar is very flexible.

What is a dollar worth? Money is worth only what it will buy. This dollar will buy less gasoline in Philadelphia than in Denver--a gallon of gasoline, the same thing, but different

prices. The dollar, therefore, on the same day is worth a different amount here than some place else. A little shopping shows that all gas stations do not charge the same price for a gallon even in the same city.

As we cross time in any horizontal analysis, even from one year to the next, we must assess the dollar's flexibility. If inflation were no more than 7 percent, \$100 spent last year would require \$107 this year. Thus, if beginning inventory were measured in last year's dollar and ending inventory in this year's dollar, those dollars are different in terms of what they represent. If the 7 percent inflation rate were extended back for five years, \$100 spent five years ago would require \$140 today. The actual rates of inflation have been up and down--as high as 11 percent a few years ago and probably even higher this year according to the behavior of the Consumer Price Index.

Differences in the dollar affect horizontal analysis clearly. They also affect amounts within a given statement. The amounts for General Fixed Assets may represent dollars from the 1920's, the 1940's, and the 1960's. A total of such dollars is meaningless from the standpoint of what those dollars really represent.

Concluding Observations

In this presentation we have examined only a handful of techniques for analyzing financial reports. There are many

kinds of ratios, percentage computations, and index numbers that can be used.

Full disclosure is a goal; it is not yet an accomplishment. Our objective should be to make financial reports work for us, to make them serve us in executing our stewardship of school financial resources.

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